

CLAIMS

1. A discharge lamp device, comprising:
 - a cylindrical arc tube containing a discharge medium;
 - 5 an internal electrode provided in the arc tube; and
 - an external electrode unit attached to an outside of the arc tube,
wherein the external electrode unit includes: external electrodes
arranged intermittently at plural places in a direction of a tube axis, each
having a part adjoining an outer wall surface of the arc tube; and
 - 10 an engaging part that integrally links the external electrodes and is
engaged with the arc tube, and
 - a part of the engaging part holds the arc tube, so that the external
electrode unit is held around the arc tube, and
 - a voltage is applied between the internal electrode and the external
 - 15 electrode, thereby lighting the arc tube.
2. The discharge lamp device according to claim 1, wherein the external
electrode unit is formed as an electrode member incorporating the external
electrodes and the engaging part and is shaped to cover half or more of the
20 arc tube in a circumferential direction.
3. The discharge lamp device according to claim 2, wherein a dielectric
member is interposed between the arc tube and the external electrode unit.
- 25 4. The discharge lamp device according to claim 3, wherein the external
electrode is made of conductive metal, is attached to an outside of the
dielectric member, and has a part in contact with the dielectric member.
5. The discharge lamp device according to claim 3, wherein an area of a
30 portion where the dielectric member and the outer wall surface of the arc
tube are in contact with each other is equal to or less than 50% of a surface
area of the arc tube.
6. The discharge lamp device according to claim 3, wherein the external
35 electrode unit is elastic and presses the dielectric member against the outer
wall surface of the arc tube.

7. The discharge lamp device according to claim 2, wherein the electrode member incorporating the external electrodes and the engaging part is arranged inside the dielectric member by insert molding.
- 5 8. The discharge lamp device according to claim 1, wherein the external electrode unit includes the engaging part made of a dielectric material shaped to cover half or more of the arc tube in a circumferential direction, and the external electrode is held in a central region of the engaging part in a circumference direction of the arc tube.
- 10 9. The discharge lamp device according to any one of claims 3, 7, and 8, wherein the dielectric member is elastic and presses the outer wall surface of the arc tube.
- 15 10. The discharge lamp device according to any one of claims 3, 7, and 8, wherein at least a part of the dielectric member reflects light emitted from the arc tube in a specific direction.
- 20 11. The discharge lamp device according to any one of claims 3, 7, and 8, wherein at least a part of the dielectric member is made of a light blocking material.
- 25 12. The discharge lamp device according to any one of claims 3, 7, and 8, wherein a portion of the dielectric member that is not in contact with the external electrode is made of a shielding material.
13. The discharge lamp device according to any one of claims 3, 7, and 8, wherein at least a part of an outer surface of the dielectric member is uneven.
- 30 14. The discharge lamp device according to any one of claims 3, 7, and 8, wherein a thickness of the dielectric member is changed partially.
- 35 15. The discharge lamp device according to claim 1, wherein an interval between the external electrodes in the direction of the tube axis is not less than 1.0 mm nor more than 50 mm.
16. The discharge lamp device according to claim 1, wherein the discharge

medium is an inert gas including at least one of xenon, krypton, argon, neon, and helium.

17. The discharge lamp device according to claim 16, wherein the discharge
5 medium further includes mercury.

18. The discharge lamp device according to claim 1, wherein a phosphor layer is adhered to an inner wall surface of the arc tube.

10 19. A backlight comprising:
the discharge lamp device according to any one of claims 1 to 18; and
a light control member for causing light generated by the discharge lamp device to spread out into a planar form.

15 20. The backlight according to claim 19, wherein the light control member is a light guide element or a light reflector.